What is claimed is:

1. A gas turbine apparatus comprising:

a combustor for combusting fuel to produce a combustion gas;

5   a turbine which is rotated by the combustion gas;

an electric generator coupled to said turbine;

a fuel flow control valve configured to change an opening thereof;

a first processing unit operable to adjust the opening of said fuel flow control valve so as to maintain a rotational speed of said turbine substantially at a constant value;

10   a second processing unit operable to adjust the opening of said fuel flow control valve so as to maintain a temperature of a discharged combustion gas at temperatures lower than a predetermined temperature; and

an electric power controller operable to control electric power to be generated by said electric generator based on an output value of said first processing unit and an output

15   value of said second processing unit.

2. The gas turbine apparatus as recited in claim 1, wherein at least one of said first processing unit and said second processing unit comprises a PID processing unit.

20   3. The gas turbine apparatus as recited in claim 1, wherein at least one of said first processing unit and said second processing unit employs a dead band.

4. The gas turbine apparatus as recited in claim 1, wherein at least one of said first processing unit and said second processing unit employs a limit control.

25

5. The gas turbine apparatus as recited in claim 1, wherein said electric power controller comprises:

a first subtracter operable to subtract the output value of said second processing

unit from the output value of said first processing unit to obtain a first calculated value;

a value converter operable to multiply the first calculated value obtained in said first subtracter by a predetermined coefficient to obtain a second calculated value; and

5   a second subtracter operable to subtract the second calculated value obtained in said value converter from a predetermined reference value.

6. The gas turbine apparatus as recited in claim 5, wherein said electric power controller further comprises a selector for sending one of load request signals to said

10   second subtracter as the predetermined reference value.

7. The gas turbine apparatus as recited in claim 1, further comprising:

a turbine controller operable to control said fuel flow control valve; and

a selector for selecting smaller one of the output values of said first processing

15   unit and said second processing unit and transmits the smaller one of the output values to said turbine controller.

8. A gas turbine apparatus comprising:

a combustor for combusting fuel to produce a combustion gas;

20   a turbine which is rotated by the combustion gas;

an electric generator coupled to said turbine;

a fuel flow control valve configured to change an opening thereof;

a first processing unit operable to adjust the opening of said fuel flow control valve so as to maintain a rotational speed of said turbine substantially at a constant value;

25   a second processing unit operable to adjust the opening of said fuel flow control valve so as to maintain a temperature of a discharged combustion gas at temperatures lower than a predetermined temperature; and

an electric power controller operable to control electric power to be generated by

18

said electric generator based on the temperature of the discharged combustion gas.

9. The gas turbine apparatus as recited in claim 8, wherein at least one of said first processing unit and said second processing unit comprises a PID processing unit.

10. The gas turbine apparatus as recited in claim 8, wherein at least one of said first processing unit and said second processing unit employs a dead band.

11. The gas turbine apparatus as recited in claim 8, wherein at least one of said first processing unit and said second processing unit employs a limit control.

12. The gas turbine apparatus as recited in claim 8, wherein said electric power controller further comprises a comparator for comparing the temperature of the discharged combustion gas to a predetermined set point to produce a load request signal.

13. The gas turbine apparatus as recited in claim 12, wherein said electric power controller further comprises a selector for selecting one of load request signals including the load request signal produced by said comparator.

14. A method of controlling electric power generated by an electric generator in a gas turbine apparatus, said method comprising:

supplying fuel through a fuel flow control valve to a combustor to produce a combustion gas;

rotating a turbine by the combustion gas;

adjusting the amount of fuel to be supplied through the fuel flow control valve so as to maintain a rotational speed of the turbine substantially at a constant value by using a first processing unit;

adjusting the amount of fuel to be supplied through the fuel flow control valve so

19

as to maintain a temperature of a discharged combustion gas at temperatures lower than a predetermined temperature by using a second processing unit; and

controlling electric power to be generated by using the second processing unit.

5   15. The method as recited in claim 14, wherein at least one of the first processing unit and the second processing unit is controlled by a PID control.

16. The method as recited in claim 14, wherein at least one of the first processing unit and the second processing unit is controlled by a dead band.

10

17. The method as recited in claim 14, wherein at least one of the first processing unit and the second processing unit is controlled by a limit control.

18. The method as recited in claim 14, wherein said controlling comprises

15   controlling electric power to be generated based on a difference between an output value of the first processing unit and an output value of the second processing unit.

19. The method as recited in claim 14, wherein said controlling comprises:

subtracting an output value of the second processing unit from an output value of

20   the first processing unit to obtain a first calculated value;

multiplying the first calculated value by a predetermined coefficient to obtain a second calculated value; and

subtracting the second calculated value from a reference value.